

Heat pump model	Master Therm	BA22I-1
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Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	No

Reference heating season		Average		
Reference water temperature		LOW, 35°C		
Full load heating		Prated [kW]	4,51	
Seasonal efficiency		η_s [%]	172	A++
Annual electricity consumption		Q_{HE} [kWh]	2128	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3.99	2.74	0.900
B	2	2.58	4.16	0.900
C	7	1.64	6.22	0.900
D	12	2.08	7.50	0.938
TOL (E)	-10	3.64	2.61	0.900
Tbivalent (F)	-7	3.99	2.74	0.900

Reference heating season		Average		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	4,44	
Seasonal efficiency		η_s [%]	130	A++
Annual electricity consumption		Q_{HE} [kWh]	2759	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3.93	2.03	0.900
B	2	2.45	3.15	0.900
C	7	1.69	4.74	0.900
D	12	1.96	5.73	0.950
TOL (E)	-10	3.68	1.90	0.900
Tbivalent (F)	-7	3.93	2.03	0.900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	5,32	
Seasonal efficiency		η_s [%]	239	
Annual electricity consumption		Q_{HE} [kWh]	1176	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	5.32	3.34	0.900
C	7	3.78	5.20	0.976
D	12	1.58	7.76	0.900
TOL (E)	2	5.32	3.34	0.900
Tbivalent (F)	2	5.32	3.34	0.900

Heat pump model	Master Therm	BA22I-1
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Reference heating season		Warmer		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	5.08	
Seasonal efficiency		η_s [%]	164	
Annual electricity consumption		Q_{HE} [kWh]	1626	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	5.08	2.25	0.900
C	7	3.54	3.52	0.900
D	12	1.95	5.56	0.951
TOL (E)	2	5.08	2.25	0.900
Tbivalent (F)	2	5.08	2.25	0.900

Reference heating season		Colder		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	6.55	
Seasonal efficiency		η_s [%]	134	
Annual electricity consumption		Q_{HE} [kWh]	4717	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3.97	2.91	0.900
B	2	2.61	4.47	0.900
C	7	1.56	6.42	0.900
D	12	2.08	7.50	0.938
TOL (E)	-22	2.64	2.34	0.900
Tbivalent (F)	-7	3.97	2.91	0.900
G	-15	3.15	2.56	0.900

Reference heating season		Colder		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	6.49	
Seasonal efficiency		η_s [%]	110	
Annual electricity consumption		Q_{HE} [kWh]	5643	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3.93	2.33	0.900
B	2	2.50	3.53	0.900
C	7	1.73	5.18	0.948
D	12	1.99	6.12	0.947
TOL (E)	-22	2.84	1.88	0.900
Tbivalent (F)	-7	3.93	2.33	0.900
G	-15	3.26	2.05	0.900

Heat pump model	Master Therm	BA22I-1
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Power consumption in modes other than "active mode"		
Off mode	P_{OFF} [kW]	0.018
Thermostat off mode	P_{TO} [kW]	0.017
Standby mode	P_{SB} [kW]	0.018
Crankcaseheater mode	P_{CK} [kW]	-

Supplementary heater capacity	P_{sup} [kW]	4,5(+4,5)
Supplementary heater type	[-]	electricity

Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor	L_{WA} [dBA]	63
Rated airflow	[m ³ /h]	max.3000

Temperature controller		
Type	Carel pCO5/pCO5+/uPC, Master Therm custom SW	
Class	II	
Contribution	%	2.0

Temperature controller + Room Terminal		
Type	Carel pCO5/pCO5+/uPC + pAD, Master Therm custom SW	
Class	VI	
Contribution	%	4.0

Heat pump model	Master Therm	BA22I-1
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Information sheet			
Temperature application		Low, 35°C	High, 55°C
Space heating energy efficiency class, Average climate	-	A++	A++
Nominal heating capacity Pdesign, Average climate	kW	5	4
Space heating seasonal efficiency, Average climate	%	172	130
Space heating annual electricity consumption, Average cl.	kWh	2128	2759
Nominal heating capacity Pdesign, Colder climate	kW	7	6
Space heating seasonal efficiency, Colder climate	%	134	110
Space heating annual electricity consumption, Colder cl.	kWh	4717	5643
Nominal heating capacity Pdesign, Warmer climate	kW	5	5
Space heating seasonal efficiency, Warmer climate	%	239	164
Space heating annual electricity consumption, Warmer cl.	kWh	1176	1626
Sound power level Lwa Outdoor	dBA	63	

Information sheet for energy efficiency Set with Temperature controller			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC, Class	-	II	II
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2.0	2.0
Set Space heating seasonal efficiency, Average climate	%	174	132
Set Space heating energy efficiency class, Average climate	-	A++	A++
Set Space heating seasonal efficiency, Colder climate	%	136	112
Set Space heating seasonal efficiency, Warmer climate	%	241	166

Information sheet for energy efficiency Set with Temperature controller + Room Terminal			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC + pAD, Class	-	VI	VI
Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	%	4.0	4.0
Set Space heating seasonal efficiency, Average climate	%	176	134
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	138	114
Set Space heating seasonal efficiency, Warmer climate	%	243	168

Heat pump model		Master Therm		BA26I-1	
Reference heating season			Warmer		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]	7.40		
Seasonal efficiency		η_s [%]	177		
Annual electricity consumption		Q_{HE} [kWh]	2199		
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
B	2	7.40	2.21	0.900	
C	7	5.17	3.71	0.900	
D	12	2.46	6.09	0.957	
TOL (E)	2	7.40	2.21	0.900	
Tbivalent (F)	2	7.40	2.21	0.900	
Reference heating season			Colder		
Reference water temperature			Low, 35°C		
Full load heating		Prated [kW]	9.65		
Seasonal efficiency		η_s [%]	132		
Annual electricity consumption		Q_{HE} [kWh]	5987		
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	5.84	2.70	0.900	
B	2	3.54	4.55	0.900	
C	7	2.97	6.82	0.960	
D	12	3.45	7.50	0.959	
TOL (E)	-22	4.16	2.08	0.900	
Tbivalent (F)	-7	5.84	2.70	0.900	
G	-15	4.81	2.32	0.900	
Reference heating season			Colder		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]	9.31		
Seasonal efficiency		η_s [%]	107		
Annual electricity consumption		Q_{HE} [kWh]	7116		
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	5.63	2.17	0.900	
B	2	3.69	3.58	0.900	
C	7	2.86	5.58	0.966	
D	12	3.33	6.22	0.965	
TOL (E)	-22	3.53	1.42	0.900	
Tbivalent (F)	-7	5.63	2.17	0.900	
G	-15	4.34	1.71	0.900	

Heat pump model	Master Therm	BA26I-1
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Power consumption in modes other than "active mode"		
Off mode	P_{OFF} [kW]	0.018
Thermostat off mode	P_{TO} [kW]	0.017
Standby mode	P_{SB} [kW]	0.018
Crankcaseheater mode	P_{CK} [kW]	-

Supplementary heater capacity	P_{sup} [kW]	4.5(+4.5)
Supplementary heater type	[-]	electricity

Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor	L_{WA} [dBA]	58
Rated airflow	[m ³ /h]	max. 3500

Temperature controller		
Type	Carel pCO5/pCO5+/uPC, Master Therm custom SW	
Class	II	
Contribution	%	2.0

Temperature controller + Room Terminal		
Type	Carel pCO5/pCO5+/uPC + pAD, Master Therm custom SW	
Class	VI	
Contribution	%	4.0

Heat pump model	Master Therm	BA26I-1
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Information sheet			
Temperature application		Low, 35°C	High, 55°C
Space heating energy efficiency class, Average climate	-	A++	A++
Nominal heating capacity Pdesign, Average climate	kW	7	6
Space heating seasonal efficiency, Average climate	%	168	126
Space heating annual electricity consumption, Average cl.	kWh	3139	4039

Nominal heating capacity Pdesign, Colder climate	kW	10	9
Space heating seasonal efficiency, Colder climate	%	132	107
Space heating annual electricity consumption, Colder cl.	kWh	5987	7116

Nominal heating capacity Pdesign, Warmer climate	kW	8	7
Space heating seasonal efficiency, Warmer climate	%	259	177
Space heating annual electricity consumption, Warmer cl.	kWh	1567	2199

Sound power level Lwa Outdoor	dBA	58	
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Information sheet for energy efficiency Set with Temperature controller			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC, Class	-	II	II
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2.0	2.0
Set Space heating seasonal efficiency, Average climate	%	170	128
Set Space heating energy efficiency class, Average climate	-	A++	A++
Set Space heating seasonal efficiency, Colder climate	%	134	109
Set Space heating seasonal efficiency, Warmer climate	%	261	179

Information sheet for energy efficiency Set with Temperature controller + Room Terminal			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC + pAD, Class	-	VI	VI
Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	%	4.0	4.0
Set Space heating seasonal efficiency, Average climate	%	172	130
Set Space heating energy efficiency class, Average climate	-	A++	A++
Set Space heating seasonal efficiency, Colder climate	%	136	111
Set Space heating seasonal efficiency, Warmer climate	%	263	181

Heat pump model	Master Therm	BA30I-1
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Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	No

Reference heating season		Average		
Reference water temperature		LOW, 35°C		
Full load heating	Prated [kW]	7.64		
Seasonal efficiency	η_s [%]	187		
Annual electricity consumption		Q_{HE} [kWh]	3326	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	C _d h (-)
A	-7	6.76	2.80	0.900
B	2	4.35	4.52	0.900
C	7	2.82	6.91	0.900
D	12	3.46	8.54	0.958
TOL (E)	-10	6.23	2.64	0.900
Tbivalent (F)	-7	6.76	2.80	0.900

Reference heating season		Average		
Reference water temperature		High, 55°C		
Full load heating	Prated [kW]	7.14		
Seasonal efficiency	η_s [%]	141		
Annual electricity consumption		Q_{HE} [kWh]	4088	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	C _d h (-)
A	-7	6.31	2.02	0.900
B	2	4.15	3.46	0.900
C	7	2.69	5.33	0.900
D	12	3.31	6.53	0.966
TOL (E)	-10	5.61	1.79	0.900
Tbivalent (F)	-7	6.31	2.02	0.900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating	Prated [kW]	9.04		
Seasonal efficiency	η_s [%]	270		
Annual electricity consumption		Q_{HE} [kWh]	1771	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	C _d h (-)
B	2	9.04	3.49	0.900
C	7	5.83	5.83	0.900
D	12	2.61	8.85	0.900
TOL (E)	2	9.04	3.49	0.900
Tbivalent (F)	2	9.04	3.49	0.900

Heat pump model		Master Therm		BA30I-1	
Reference heating season			Warmer		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]		8.41	
Seasonal efficiency		η_s [%]		185	
Annual electricity consumption		Q_{HE} [kWh]		2386	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
B	2	8.41	2.34	0.900	
C	7	5.36	3.89	0.900	
D	12	2.47	6.32	0.900	
TOL (E)	2	8.41	2.34	0.900	
Tbivalent (F)	2	8.41	2.34	0.900	
Reference heating season			Colder		
Reference water temperature			Low, 35°C		
Full load heating		Prated [kW]		11.14	
Seasonal efficiency		η_s [%]		139.07	
Annual electricity consumption		Q_{HE} [kWh]		6587	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	6.74	1.00	2.943	
B	2	4.10	1.00	4.831	
C	7	2.64	1.00	7.116	
D	12	1.17	0.45	8.536	
TOL (E)	-22	11.14	1.00	2.128	
Tbivalent (F)	-7	6.74	1.00	2.943	
G	-15	9.09	1.00	2.430	
Reference heating season			Colder		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]		10.94	
Seasonal efficiency		η_s [%]		114.12	
Annual electricity consumption		Q_{HE} [kWh]		7845	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	6.62	1.00	2.376	
B	2	4.03	1.00	3.864	
C	7	2.59	1.00	5.798	
D	12	1.15	0.46	6.963	
TOL (E)	-22	10.94	1.00	1.510	
Tbivalent (F)	-7	6.62	1.00	2.376	
G	-15	8.92	1.00	1.840	

Heat pump model	Master Therm	BA30I-1
Power consumption in modes other than "active mode"		
Off mode	P_{OFF} [kW]	0.018
Thermostat off mode	P_{TO} [kW]	0.017
Standby mode	P_{SB} [kW]	0.018
Crankcaseheater mode	P_{CK} [kW]	-
Supplementary heater capacity		
Supplementary heater capacity	P_{sup} [kW]	6(+6)
Supplementary heater type	[-]	electricity
Capacity control		
Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor	L_{WA} [dBA]	65
Rated airflow	[m ³ /h]	max.6000
Temperature controller		
Type	Carel pCO5/pCO5+/uPC, Master Therm custom SW	
Class	II	
Contribution	%	2.0
Temperature controller + Room Terminal		
Type	Carel pCO5/pCO5+/uPC + pAD, Master Therm custom SW	
Class	VI	
Contribution	%	4.0

Heat pump model	Master Therm	BA301-1
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Information sheet			
Temperature application		Low, 35°C	High, 55°C
Space heating energy efficiency class, Average climate	-	A+++	A++
Nominal heating capacity Pdesign, Average climate	kW	8	7
Space heating seasonal efficiency, Average climate	%	187	141
Space heating annual electricity consumption, Average cl.	kWh	3326	4088

Nominal heating capacity Pdesign, Colder climate	kW	11	11
Space heating seasonal efficiency, Colder climate	%	139	114
Space heating annual electricity consumption, Colder cl.	kWh	6587	7845

Nominal heating capacity Pdesign, Warmer climate	kW	9	8
Space heating seasonal efficiency, Warmer climate	%	270	185
Space heating annual electricity consumption, Warmer cl.	kWh	1771	2386

Sound power level Lwa Outdoor	dBA	65	
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Information sheet for energy efficiency Set with Temperature controller			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC, Class	-	II	II
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2.0	2.0
Set Space heating seasonal efficiency, Average climate	%	189	143
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	141	116
Set Space heating seasonal efficiency, Warmer climate	%	272	187

Information sheet for energy efficiency Set with Temperature controller + Room Terminal			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC + pAD, Class	-	VI	VI
Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	%	4.0	4.0
Set Space heating seasonal efficiency, Average climate	%	191	145
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	143	118
Set Space heating seasonal efficiency, Warmer climate	%	274	189

Heat pump model	Master Therm	BA37I-1
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Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	No

Reference heating season		Average		
Reference water temperature		LOW, 35°C		
Full load heating		Prated [kW]	10.93	
Seasonal efficiency		η_s [%]	176	
Annual electricity consumption		Q_{HE} [kWh]	5035	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	C _d h (-)
A	-7	9.67	2.64	0.900
B	2	6.10	4.38	0.900
C	7	4.06	6.19	0.900
D	12	4.75	7.62	0.961
TOL (E)	-10	9.04	2.48	0.900
Tbivalent (F)	-7	9.67	2.64	0.900

Reference heating season		Average		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	10.02	
Seasonal efficiency		η_s [%]	137	
Annual electricity consumption		Q_{HE} [kWh]	5910	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	C _d h (-)
A	-7	8.86	2.00	0.900
B	2	5.45	3.41	0.900
C	7	3.48	4.94	0.900
D	12	4.08	6.01	0.965
TOL (E)	-10	8.22	1.85	0.900
Tbivalent (F)	-7	8.86	2.00	0.900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	12.45	
Seasonal efficiency		η_s [%]	249	
Annual electricity consumption		Q_{HE} [kWh]	2645	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	C _d h (-)
B	2	12.45	3.33	0.900
C	7	8.12	5.54	0.900
D	12	3.58	7.87	0.900
TOL (E)	-10	12.45	3.33	0.900
Tbivalent (F)	-7	12.45	3.33	0.900

Heat pump model		Master Therm		BA37I-1	
Reference heating season			Warmer		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]		11.14	
Seasonal efficiency		η_s [%]		175	
Annual electricity consumption		Q_{HE} [kWh]		3348	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
B	2	11.14	2.28	0.900	
C	7	7.21	3.79	0.900	
D	12	4.51	5.84	0.969	
TOL (E)	-10	11.14	2.28	0.900	
Tbivalent (F)	-7	11.14	2.28	0.900	
Reference heating season			Colder		
Reference water temperature			Low, 35°C		
Full load heating		Prated [kW]		16.31	
Seasonal efficiency		η_s [%]		135	
Annual electricity consumption		Q_{HE} [kWh]		11678	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	9.87	2.78	0.900	
B	2	6.18	4.67	0.900	
C	7	4.09	6.35	0.900	
D	12	4.75	7.62	0.961	
TOL (E)	-22	7.55	2.00	0.900	
Tbivalent (F)	-7	9.87	2.78	0.900	
G	-15	8.44	2.30	0.900	
Reference heating season			Colder		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]		15.21	
Seasonal efficiency		η_s [%]		112	
Annual electricity consumption		Q_{HE} [kWh]		12984	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	9.20	2.27	0.900	
B	2	5.89	3.78	0.900	
C	7	3.93	5.32	0.900	
D	12	4.59	6.36	0.967	
TOL (E)	-22	6.95	1.64	0.900	
Tbivalent (F)	-7	9.20	2.27	0.900	
G	-15	7.82	1.89	0.900	

Heat pump model	Master Therm	BA37I-1
Power consumption in modes other than "active mode"		
Off mode	P_{OFF} [kW]	0.026
Thermostat off mode	P_{TO} [kW]	0.024
Standby mode	P_{SB} [kW]	0.026
Crankcaseheater mode	P_{CK} [kW]	-
Supplementary heater capacity		
Supplementary heater capacity	P_{sup} [kW]	7.5(+7.5)
Supplementary heater type	[-]	electricity
Capacity control		
Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor	L_{WA} [dBA]	62
Rated airflow	[m ³ /h]	max.6000
Temperature controller		
Type	Carel pCO5/pCO5+/uPC, Master Therm custom SW	
Class	II	
Contribution	%	2.0
Temperature controller + Room Terminal		
Type	Carel pCO5/pCO5+/uPC + pAD, Master Therm custom SW	
Class	VI	
Contribution	%	4.0

Heat pump model	Master Therm	BA371-1
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Information sheet			
Temperature application		Low, 35°C	High, 55°C
Space heating energy efficiency class, Average climate	-	A+++	A++
Nominal heating capacity Pdesign, Average climate	kW	11	10
Space heating seasonal efficiency, Average climate	%	176	137
Space heating annual electricity consumption, Average cl.	kWh	5035	5910

Nominal heating capacity Pdesign, Colder climate	kW	16	15
Space heating seasonal efficiency, Colder climate	%	135	112
Space heating annual electricity consumption, Colder cl.	kWh	11678	12984

Nominal heating capacity Pdesign, Warmer climate	kW	12	11
Space heating seasonal efficiency, Warmer climate	%	249	175
Space heating annual electricity consumption, Warmer cl.	kWh	2645	3348

Sound power level Lwa Outdoor	dBA	62	
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Information sheet for energy efficiency Set with Temperature controller			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC, Class	-	II	II
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2.0	2.0
Set Space heating seasonal efficiency, Average climate	%	178	139
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	137	114
Set Space heating seasonal efficiency, Warmer climate	%	251	177

Information sheet for energy efficiency Set with Temperature controller + Room Terminal			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC + pAD, Class	-	VI	VI
Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	%	4.0	4.0
Set Space heating seasonal efficiency, Average climate	%	180	141
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	139	116
Set Space heating seasonal efficiency, Warmer climate	%	253	179

Heat pump model	Master Therm	BA45I-1
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Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	No

Reference heating season		Average		
Reference water temperature		LOW, 35°C		
Full load heating		Prated [kW]	13.37	
Seasonal efficiency		η_s [%]	175	A+++
Annual electricity consumption		Q_{HE} [kWh]	6195	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	11.83	2.77	0.900
B	2	7.91	4.17	0.900
C	7	4.88	6.44	0.900
D	12	5.73	7.93	0.967
TOL (E)	-10	10.96	2.32	0.900
Tbivalent (F)	-7	11.83	2.77	0.900

Reference heating season		Average		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	12.05	
Seasonal efficiency		η_s [%]	136	A++
Annual electricity consumption		Q_{HE} [kWh]	7166	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	10.66	2.10	0.900
B	2	6.82	3.28	0.900
C	7	4.38	5.00	0.900
D	12	4.83	6.13	0.970
TOL (E)	-10	9.57	1.77	0.900
Tbivalent (F)	-7	10.66	2.10	0.900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	15.78	
Seasonal efficiency		η_s [%]	251	
Annual electricity consumption		Q_{HE} [kWh]	3326	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	15.78	3.03	0.900
C	7	9.77	5.50	0.900
D	12	5.09	8.20	0.961
TOL (E)	2	15.78	3.03	0.900
Tbivalent (F)	2	15.78	3.03	0.900

Heat pump model	Master Therm	BA45I-1
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Reference heating season		Warmer		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	13.11	
Seasonal efficiency		η_s [%]	172	
Annual electricity consumption		Q_{HE} [kWh]	3992	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	Cdh (-)
B	2	13.11	2.14	0.900
C	7	8.70	3.66	0.900
D	12	6.40	5.94	0.978
TOL (E)	2	13.11	2.14	0.900
Tbivalent (F)	2	13.11	2.14	0.900

Reference heating season		Colder		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	19.79	
Seasonal efficiency		η_s [%]	130	
Annual electricity consumption		Q_{HE} [kWh]	14639	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	Cdh (-)
A	-7	11.98	2.61	0.900
B	2	7.22	4.62	0.900
C	7	5.76	6.63	0.972
D	12	6.74	7.93	0.972
TOL (E)	-22	8.20	1.97	0.900
Tbivalent (F)	-7	11.98	2.61	0.900
G	-15	9.47	2.18	0.900

Reference heating season		Colder		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	19.18	
Seasonal efficiency		η_s [%]	108	
Annual electricity consumption		Q_{HE} [kWh]	17082	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	Cdh (-)
A	-7	11.61	2.09	0.900
B	2	6.66	3.72	0.900
C	7	5.56	5.43	0.977
D	12	6.52	6.52	0.976
TOL (E)	-22	7.65	1.68	0.900
Tbivalent (F)	-7	11.61	2.09	0.900
G	-15	8.95	1.77	0.900

Heat pump model	Master Therm	BA45I-1
Power consumption in modes other than "active mode"		
Off mode	P_{OFF} [kW]	0.026
Thermostat off mode	P_{TO} [kW]	0.024
Standby mode	P_{SB} [kW]	0.026
Crankcaseheater mode	P_{CK} [kW]	-
Supplementary heater capacity		
Supplementary heater capacity	P_{sup} [kW]	7.5(+7.5)
Supplementary heater type	[-]	electricity
Capacity control		
Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor	L_{WA} [dBA]	62
Rated airflow	[m ³ /h]	max.8000
Temperature controller		
Type	Carel pCO5/pCO5+/uPC, Master Therm custom SW	
Class	II	
Contribution	%	2.0
Temperature controller + Room Terminal		
Type	Carel pCO5/pCO5+/uPC + pAD, Master Therm custom SW	
Class	VI	
Contribution	%	4.0

Heat pump model	Master Therm	BA45I-1
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Information sheet			
Temperature application		Low, 35°C	High, 55°C
Space heating energy efficiency class, Average climate	-	A+++	A++
Nominal heating capacity Pdesign, Average climate	kW	13	12
Space heating seasonal efficiency, Average climate	%	175	136
Space heating annual electricity consumption, Average cl.	kWh	6195	7166

Nominal heating capacity Pdesign, Colder climate	kW	20	19
Space heating seasonal efficiency, Colder climate	%	130	108
Space heating annual electricity consumption, Colder cl.	kWh	14639	17082

Nominal heating capacity Pdesign, Warmer climate	kW	16	13
Space heating seasonal efficiency, Warmer climate	%	251	172
Space heating annual electricity consumption, Warmer cl.	kWh	3326	3992

Sound power level Lwa Outdoor	dBA	62	
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Information sheet for energy efficiency Set with Temperature controller			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC, Class	-	II	II
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2.0	2.0
Set Space heating seasonal efficiency, Average climate	%	177	138
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	132	110
Set Space heating seasonal efficiency, Warmer climate	%	253	174

Information sheet for energy efficiency Set with Temperature controller + Room Terminal			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC + pAD, Class	-	VI	VI
Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	%	4.0	4.0
Set Space heating seasonal efficiency, Average climate	%	179	140
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	134	112
Set Space heating seasonal efficiency, Warmer climate	%	255	176

Heat pump model	Master Therm	BA60I-1
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Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	No

Reference heating season		Average		
Reference water temperature		LOW, 35°C		
Full load heating		Prated [kW]	22.57	
Seasonal efficiency		η_s [%]	177	
Annual electricity consumption		Q_{HE} [kWh]	10351	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	20.64	2.64	0.900
B	2	12.68	4.21	0.900
C	7	8.04	6.61	0.900
D	12	9.26	8.02	0.977
TOL (E)	-10	22.57	2.35	0.900
Tbivalent (F)	-10	22.57	2.35	0.900

Reference heating season		Average		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	24.94	
Seasonal efficiency		η_s [%]	135	
Annual electricity consumption		Q_{HE} [kWh]	14980	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	21.44	2.05	0.900
B	2	12.27	3.22	0.900
C	7	7.80	5.06	0.900
D	12	9.00	6.13	0.982
TOL (E)	-10	22.06	1.55	0.900
Tbivalent (F)	-7	22.06	1.55	0.900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	30.53	
Seasonal efficiency		η_s [%]	248	
Annual electricity consumption		Q_{HE} [kWh]	6503	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	30.53	3.18	0.900
C	7	20.32	5.22	0.900
D	12	9.29	8.30	0.900
TOL (E)	2	30.53	3.18	0.900
Tbivalent (F)	2	30.53	3.18	0.900

Heat pump model	Master Therm	BA60I-1
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Reference heating season		Warmer		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	30.47	
Seasonal efficiency		η_s [%]	173	
Annual electricity consumption		Q_{HE} [kWh]	9259	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	Cdh (-)
B	2	30.47	2.27	0.900
C	7	20.53	3.57	0.900
D	12	8.97	5.93	0.900
TOL (E)	2	30.47	2.27	0.900
Tbivalent (F)	2	30.47	2.27	0.900

Reference heating season		Colder		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	32.27	
Seasonal efficiency		η_s [%]	141	
Annual electricity consumption		Q_{HE} [kWh]	22051	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	Cdh (-)
A	-7	19.53	2.79	0.900
B	2	12.78	4.49	0.900
C	7	8.07	6.82	0.900
D	12	9.26	8.02	0.977
TOL (E)	-22	20.47	2.24	0.900
Tbivalent (F)	-7	19.53	2.79	0.900
G	-15	22.66	2.41	0.900

Reference heating season		Colder		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	31.21	
Seasonal efficiency		η_s [%]	116	
Annual electricity consumption		Q_{HE} [kWh]	25783	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pd _h [kW]	COP _d (-)	Cdh (-)
A	-7	18.89	2.28	0.900
B	2	12.43	3.60	0.900
C	7	7.89	5.52	0.900
D	12	9.07	6.54	0.981
TOL (E)	-22	21.78	1.86	0.900
Tbivalent (F)	-7	18.89	2.28	0.900
G	-15	22.84	1.98	0.900

Heat pump model	Master Therm	BA60I-1
Power consumption in modes other than "active mode"		
Off mode	P_{OFF} [kW]	0.028
Thermostat off mode	P_{TO} [kW]	0.027
Standby mode	P_{SB} [kW]	0.028
Crankcaseheater mode	P_{CK} [kW]	-
Supplementary heater capacity		
Supplementary heater capacity	P_{sup} [kW]	7.5(+7.5)
Supplementary heater type	[-]	electricity
Capacity control		
Capacity control		Variable
Sound power level Indoor		
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor		
Sound power level Outdoor	L_{WA} [dBA]	66
Rated airflow		
Rated airflow	[m ³ /h]	max.8000
Temperature controller		
Type	Carel pCO5/pCO5+/uPC, Master Therm custom SW	
Class	II	
Contribution	%	2.0
Temperature controller + Room Terminal		
Type	Carel pCO5/pCO5+/uPC + pAD, Master Therm custom SW	
Class	VI	
Contribution	%	4.0

Heat pump model	Master Therm	BA60I-1
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Information sheet			
Temperature application		Low, 35°C	High, 55°C
Space heating energy efficiency class, Average climate	-	A+++	A++
Nominal heating capacity Pdesign, Average climate	kW	23	25
Space heating seasonal efficiency, Average climate	%	177	135
Space heating annual electricity consumption, Average cl.	kWh	10351	14980

Nominal heating capacity Pdesign, Colder climate	kW	32	31
Space heating seasonal efficiency, Colder climate	%	141	116
Space heating annual electricity consumption, Colder cl.	kWh	22051	25783

Nominal heating capacity Pdesign, Warmer climate	kW	31	30
Space heating seasonal efficiency, Warmer climate	%	248	173
Space heating annual electricity consumption, Warmer cl.	kWh	6503	9259

Sound power level Lwa Outdoor	dBA	66	
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Information sheet for energy efficiency Set with Temperature controller			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC, Class	-	II	II
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2.0	2.0
Set Space heating seasonal efficiency, Average climate	%	179	137
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	143	118
Set Space heating seasonal efficiency, Warmer climate	%	250	175

Information sheet for energy efficiency Set with Temperature controller + Room Terminal			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC + pAD, Class	-	VI	VI
Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	%	4.0	4.0
Set Space heating seasonal efficiency, Average climate	%	181	139
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	145	120
Set Space heating seasonal efficiency, Warmer climate	%	252	177